Title

Artificial Intelligence and Computer Interface

Cross Reference of Related Application

This is a regular application of a provisional application, application number
5   60/195,316, filed 04/10/2000.

Background of the Present Invention

The present invention relates to a new way of constructing chatter robots based
on client-server communication via Internet, wherein artificial intelligence is made
possible with a server side Oracle database, a client side computer interface, a server side
10   semi-automatic machine learning module, and human assistance.

Summary of the Present Invention

A main object of the present invention is to provide an innovative artificial
intelligence based on the recognition of relationship between different sentences in
human conversation.

15   It is another object of the present invention that includes a new kind of
computer interface, powered by the new kind of chatter robots, so as to allow users to
obtain information and complete computer related tasks by communicate with the
computer via common natural language.

It is another object of the present invention that includes ways of incorporate the
20   new artificial intelligence and computer interface with online computer games, both to
enhance the computer games and to further retain games players.

It is another object of the present invention that offers a new way of constructing chatter robots using client-server communication via Internet and ways of utilizing this new chatter robots as Internet Portal and various aids for computer users.

It is another object of the present invention that includes ways of incorporating these chatter robots both as non-player-characters in computer online games and extension of computer online games into users' computer desktop.

Detailed Description of the Preferred Embodiment

Chatter robots and artificial intelligence: A simple human convention session is not an exact sentence and conversation subjects, which tend to change quickly form one to seemly unrelated others, loosely maintain the relationship between sentences. This invention constructs a new and practical artificial intelligence (AI) based on definition of sentences level relationship.

Instead of trying to teach the artificial intelligence (AI) to understand every sentence, we simply teach the artificial intelligence (AI) to recognize the uniqueness of the sentence, i.e. sentence identification (sentence ID) based on meaningful words and the order of these meaningful words, then lookup the sentence ID in a sentences relationship database and choose a reply. The sentences relationship database includes original sentences, meaningful words from the sentences, category of the sentences, and the list of possible sentences as a reply to the original sentences.

A conversion sentences relationship database is constructed in Chinese language for demonstration purposes. Starting with 8,000 commonly used Chinese words, a team of 80 people was asked to use these words in normal conversations, and sentences were recorded. Usable sentences were selected with their sentence ID generated. About 40,000 sentences were selected and a one-sentences reply to these sentences was obtained with the help of the same 80 people team. The 200,000 reply sentences were filtered based on their conversation quality and about 150,000 sentences were used. These sentences were also cataloged according to manners (mean, nice, normal, and etc) and relationship (normal, friend, lover). Then the selected sentences, the

sentences ID, and the sentence category, are input into one database, together with the replying sentence ID for the 40,000 sentences.

A learning process of the artificial intelligence (AI) is done with help of human assistance. Whenever users input a sentence that has a sentences ID that is not included in the database, or with the sentences ID listed in the database, but without identifying a replying sentence, a conversation technique (agreeing, change conversational subject, and etc.) is used to keep the conversation going on, while the system logs a new un-replyable sentence. The answers to the new sentences are complied and input into the database by the human team, so the next time when the same question is asked, the artificial intelligence (AI) will be able to answer correctly. The artificial intelligence (AI) automatic learning process can be accomplished when enough users participate in the conversation with the artificial intelligence (AI). In that case the relationship between sentences can be established based on interrelationship of every sentences ID. Human interaction will help the accuracy of identify the interrelationship, but will be unnecessary when the usage of the artificial intelligence (AI) raises to a certain level where the interrelationship of two sentences ID is confirmed by multiple users' interaction with the artificial intelligence (AI).

To improve the matching of sentence ID, a modified vocabulary treasure database were used to increase numbers of sentence by several fold in artificial intelligence's sentence relationship database.

The value of chatter robots is of limited entertainment for computer users if they don't serve other purposes. As an Internet artificial intelligence (AI), this new artificial intelligence (AI) can handle common knowledge query with the construction of common knowledge database, With the common knowledge database, questions like "what is the distance between Los Angeles and New York" can be answered, by automatically inputting related questions and answers into the sentence relationship database or via direct interaction with the common knowledge database.

Moreover, with the ability of this new chatter robot, a new kind of computer Interface can thus be achieved, running on "Window" or other graphically operating systems. It is basically a character as an interface between the artificial intelligence (AI) with the users. The character can take the form of human figures, or any other figures,

such as animals, frictional subjects, and etc. When executed, it is always "float" on top of other running programs.

Because its ability to chat with users and answer users' questions in common language, this onscreen character will easily fit into the role of computer assistance.

5   Humanlike relationship is simulated using, including but not limited to, different conversation mode, and the amount of intimacy in interaction. Different level of character-users relationship can be defined by the frequency of interactions between users and the character and other definable standard.

The figure can be scaled and can be temporary hideaway as requested by users.
10   Because it is always accessible by users, it can directly link users quickly link users quickly and more conveniently to various Internet resources, such as search engines, web sites and web services. Incorporating with other computer software and system resource, the character can offer personalized services such as address books, data planner, bookmark management.

15   This new interface also includes an active recommendation system, which will suggest things for users based on their conversation contents and preference. For example, when one user inputs something including "I, want, vacation", the artificial intelligence (AI) will automatically popup message box on the computer screen recommending the best traveling website and the hottest deals available. Another
20   example will be to ask users "would you like a joke?" or "Want to read news?" remaining them of the things they can do on the web, and introducing to them new.

In other words, many of the commonly used computer functions are made more accessible with this new kind of interface. User loyalty is retained by accumulating user's preference and the simulating users-character relationship.

25   Due to the fact that online computer games as a form of online community are becoming popular worldwide. The present invention also includes a new kind of incorporation of the various online computer games with the new user interface. Since the new user interface utilized characters, game characters from various computer games can be used as the character in the new interface. Almost every online computer game now
30   available on the market uses characters that can be separated from the main programs and

4

be used in the new interface. That way, it would be a great way of promoting various online games, and reminding users of these games to revisit the games.